

INFORMATION DISCLOSURE CITATION

PTO-1449

DEC 26 2000

 ATTY. DOCKET NO.
A-67499-1/RFT/
RMS/RMK

 SERIAL NO:
09/472,657

 APPLICANT:
KAYYEM

 FILING DATE:
December 27, 1999

 GROUP
3736

U.S. PATENT DOCUMENTS

EXAMINER'S INITIALS		PATENT NO.	DATE	NAME	CLASS	SUBCLASS	FILING DATE
✓	1	4,707,352	11/17/87	Stavrianopoulos			
✓	2	4,707,440	11/1987	Stavrianopoulos	435	6	
✓	3	4,711,955	12/8/87	Ward et al.			
✓	4	4,755,458	7/5/88	Rabbani et al.			
✓	5	4,849,513	7/18/89	Smith et al.	536	27	
✓	6	4,868,103	9/19/89	Stavrianopoulos et al.			
✓	7	4,894,325	1/16/90	Englehardt et al.			
✓	8	4,943,523	7/24/90	Stavrianopoulos			
✓	9	4,952,685	8/28/90	Stavrianopoulos			
✓	10	4,994,373	2/19/91	Stavrianopoulos			
✓	11	5,002,885	3/26/91	Stavrianopoulos			
✓	12	5,013,831	5/7/91	Stavrianopoulos			

FOREIGN PATENT DOCUMENTS

EXAMINER'S INITIALS		PATENT NO.	DATE	COUNTRY	CLASS	SUBCLASS	Translation	
							Yes	No
✓	13	0 63879	11/3/82	Europe ✓				
✓	14	92/10757	6/25/92	PCT (WO) ✓				
✓	15	0 234938	2/26/87	EP (A2) ✓				
✓	16	93/10267	PCT					

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

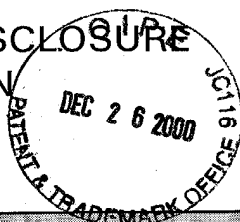
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✓	17	5,082,830	1/21/92	Brakel et al.			
✓	18	5,175,269	12/29/92	Stavrianopoulos			
✓	19	5,241,060	8/31/93	Englehardt et al.			
✓	20	5,278,043	1/11/95	Bannwarth et al.	536	23.1	
✓	21	5,312,527	5/17/94	Mikkelsen et al.	204	153.12	
✓	22	5,328,824	7/12/94	Ward et al.			
✓	23	5,449,767	9/12/95	Ward et al.			
✓	24	5,472,881	12/95	Beebe et al.	436	94	
✓	25	5,476,928	12/19/95	Ward et al.			
✓	26	5,595,908	1/21/97	Fawcett et al.	435	287.2	
✓	27	5,565,552	10/15/96	Magda et al.	534	11	
✓	28	5,573,906	11/12/96	Bannwarth et al.	435	6	
✓	29	5,591,578	1/7/97	Meade et al.	435	6	
✓	30	5,601,982	2/1997	Sargent et al.	435	6	

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							Yes	No
✓	31	2 090904	9/24/93	CANADA ✓				
✓	32	0 599337	1/16/94	EPO ✓				
✓	33	238,166	1988	JP (Abstract (63-238166)) ✓				
✓	34	0 229943	7/29/87	EP ✓				
✓	35	96/40712	12/19/96	WO ✓				

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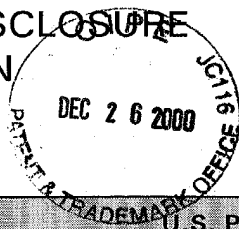
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✓	36	4,840,893	6/20/89	Hill et al.	435	6	
✓	37	5,403,451	4/4/95	Riviello et al.	204	153.1	
✓	38	5,620,850	4/15/97	Bamdad et al.	530	300	
✓	39	5,780,234	7/14/98	Meade et al.	435	6	
✓	40	5,770,369	6/23/98	Meade et al.	435	6	
✓	41	5,705,348	1/6/98	Meade et al.	435	6	
✓	42	5,824,473	10/1998	Meade et al.	435	6	

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							Yes	No
✓	43	0515615	9/4/96	EP (UK)				
✓	44	97/01646	1/16/97	WO				
✓	45	93/23425	11/25/93	WO				
✓	46	90/05732	5/31/90	WO				
✓	47	6-41183	2/15/94	JP			X	
✓	48	93/22678	11/1993	PCT				
✓	49	97/44651	11/1997	PCT				
✓	50	98/35232	8/1998	PCT				

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✓	51	5,776,672	7/1998	Hashimoto et al.			
✓	52	5,952,172	9/1999	Meade et al.			
✓	53	5,552,270	9/1996	Khrapko et al.			
✓	54	5,741,700	4/1998	Ershov et al.			
✓	55	5,770,721	6/1998	Ershov et al.			
✓	56	5,851,772	12/1998	Mirzabekov et al.			
✓	57	5,756,050	5/1998	Ershov et al.			

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							Yes	No
✓	58	95/15971	6/1995	PCT ✓				
✓	59	94/22889	10/1994	PCT ✓				
✓	60	98/20162	5/1998	PCT ✓				
✓	61	99/14596	3/1999	PCT ✓				
✓	62	99/67425	12/1999	PCT ✓				
✓	63	98/28444	7/1998	PCT ✓				
✓	64	98/27229	6/1998	PCT ✓				
✓	65	97/27329	7/1997	PCT ✓				

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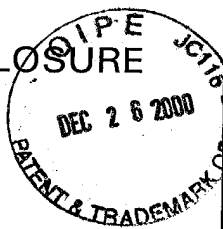
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X	66	Alleman, K.S., et al., "Electrochemical Rectification at a Monolayer-Modified Electrode," <i>J. Phys. Chem.</i> , 100:17050-17058 (1996).	
X	67	Arkin et al. "Evidence for Photoelectron Transfer Through DNA Intercalation," <i>J. Inorganic Biochem. Abstracts</i> , 6th International Conference on Bioinorganic Chemistry, 51(1) & (2):526 (1993).	
X	68	Barisci et al., "Conducting Polymer Sensors," <i>TRIP</i> , 4(9):307-311 (1996).	
X	69	Baum, R. M., "Views on Biological, Long-Range Electron Transfer Stir Debate," <i>C&EN</i> , pp 20-23 (1993).	
X	70	Bechtold, R., et al., "Ruthenium-Modified Horse Heart Cytochrome c: Effect of pH and Ligation on the Rate of Intramolecular Electron Transfer between Ruthenium(II) and Heme(III)," <i>J. Phys. Chem.</i> , 90(16):3800-3804 (1986).	
✓	71	Bidan, "Electroconducting conjugated polymers: new sensitive matrices to build up chemical or electrochemical sensors. A Review.," <i>Sensors and Actuators</i> , B6:45-56 (1992).	
✓	72	Biotechnology and Genetics: Genetic Screening Integrated Circuit," <i>The Economist</i> (February 25-March 3, 1995).	
X	73	Boguslavsky, L. et al., "Applications of redox polymers in biosensors," <i>Solid State Ionics</i> , 60:189-197 (1993).	
X	74	Bowler, B. E., et al., "Long-Range Electron Transfer in Donor (Spacer) Acceptor Molecules and Proteins," <i>Progress in Inorganic Chemistry: Bioinorganic Chemistry</i> , 38:259-322 (1990).	
X	75	Brun, A. M., et al., "Photochemistry of Intercalated Quaternary Diazaaromatic Salts," <i>J. Am. Chem. Soc.</i> , 113:8153-8159 (1991).	
X	76	Bumm, et al., "Are Single Molecular Wires Conducting?," <i>Science</i> 271:1705-1707 (1996).	
X	77	Cantor, C.R. et al., "Report on the Sequencing by Hybridization Workshop," <i>Genomics</i> , 13:1378-1383 (1992).	
X	78	Chang, I-Jy, et al., "High-Driving-Force Electron Transfer in Metalloproteins: Intramolecular Oxidation of Ferrocycytochrome c by Ru(2,2'-bpy) ₂ (im)(His-33) ³⁺ ," <i>J. Am. Chem. Soc.</i> , 113:7056-7057 (1991).	
X	79	Chidsey, C.E.D., et al., "Free Energy and Temperature Dependence of Electron Transfer at the Metal Electrolyte Interface," <i>Science</i> , 251:919-923 (1991).	
✓	80	Chidsey, et al., "Coadsorption of Ferrocene-Terminated and Unsubstituted Alkanethiols on Gold" Electroactive Self-Assembled Monolayers," <i>J. Am. Chem. Soc.</i> , 112:4301-4306 (1990).	
X	81	Chrisey, et al., "Covalent attachment of synthetic DNA to self-assembled monolayer films," <i>Nucleic Acids Research</i> , 24(15):3031-3039 (1996).	
X	82	Clery, "DNA Goes Electric," <i>Science</i> , 267:1270 (1995).	
✓	83	Commerce Business Daily Issue of September 26, 1996 PSA#1688.	
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✓	85	Davis, L. M., et al., "Electron Donor Properties of the Antitumour Drug Amsacrine as Studied by Fluorescence Quenching of DNA-Bound Ethidium," <i>Chem.-Biol. Interactions</i> , 62:45-58 (1987).
X	86	Davis, L. M., et al., "Elements of biosensor construction," <i>Enzyme Microb. Technol.</i> 17:1030-1035 (1995).
X	87	Degani et al., "Direct Electrical Communication between Chemically Modified Enzymes and Metal Electrodes. 2. Methods for Bonding Electron-Transfer Relays to Glucose Oxidase and D-Amino-Acid Oxidase," <i>J. Am. Chem. Soc.</i> 110:2615-2620 (1988).
X	88	Degani, Y., et al., "Electrical Communication between Redox Centers of Glucose Oxidase and Electrodes via Electrostatically and Covalently Bound Redox Polymers," <i>J. Am. Chem. Soc.</i> , 111:2357-2358 (1989).
X	89	Degani, Y., et al., "Direct Electrical Communication between Chemically Modified Enzymes and Metal Electrodes. 1. Electron Transfer from Glucose Oxidase to Metal Electrodes via Electron Relays, Bound Covalently to the Enzyme," <i>J. Phys. Chem.</i> , 91(6):1285-1288 (1987).
X	90	Deinhammer, R.S., et al., "Electrochemical Oxidation of Amine-containing compounds: A Route to the Surface Modification of glassy carbon electrodes," <i>Langmuir</i> , 10:1306-1313 (1994).
X	91	Dreyer, G. B., et al., "Sequence-specific cleavage of single-stranded DNA: Oligodeoxynucleotide-EDTA-Fe(II)," <i>Proc. Natl. Acad. Sci. USA</i> , 82:968-972 (1985).
X	92	Durham, B., et al., "Photoinduced Electron-Transfer Kinetics of Singly Labeled Ruthenium Bis(bipyridin) Dicarboxybipyridine Cytochrome c Derivatives," <i>Biochemistry</i> , 28:8659-8665 (1989).
X	93	Durham, B., et al., "Electron-Transfer Kinetics of Singly Labeled Ruthenium(II) Polypyridine Cytochrome c Derivatives," <i>Advances in Chemistry Series</i> , 226:181-193 (1990).
X	94	Elias, H., et al., "Electron-Transfer Kinetics of Zn-Substituted Cytochrome c and Its Ru(NH ₃) ₅ (Histidine-33) Derivative," <i>J. Am. Chem. Soc.</i> , 110:429-434 (1988).
X	95	Farver, O., et al., "Long-range intramolecular electron transfer in azurins," <i>Proc. Natl. Acad. Sci. USA</i> , 86:6968-6972 (1989).
X	96	Fox, L. S., et al., "Gaussian Free-Energy Dependence of Electron-Transfer Rates in Iridium Complexes," <i>Science</i> , 247:1069-1071 (1990).
X	97	Fox, M. A., et al., "Light-Harvesting Polymer Systems," <i>C&EN</i> , pages 38-48 (March 15, 1993).
X	98	Francois, J-C., et al., "Periodic Cleavage of Poly(dA) by Oligothymidylates Covalently Linked to the 1,10-Phenanthroline-Copper Complex," <i>Biochemistry</i> , 27:2272-2276 (1988).
X	99	Friedman, A. E., et al., "Molecular 'Light Switch' for DNA: Ru(bpy) ₂ (dppz) ²⁺ ," <i>J. Am. Chem. Soc.</i> , 112:4960-4962 (1990).
✓	100	Fromherz, P., et al., "Photoinduced Electron Transfer in DNA Matrix from Intercalated Ethidium to Condensed Methylviologen," <i>J. Am. Chem. Soc.</i> , 108:5361-5362 (1986).
✓	101	Gardner, et al., "Application of conducting polymer technology in microsystems," <i>Sensors and Actuators</i> , A51:57-66 (1995).
✓	102	Gregg, B. A., et al., "Cross-linked redox gels containing glucose oxidase for amperometric biosensor applications," <i>Anal. Chem.</i> , 62:258-263 (1990).
✓	103	Gregg, B. A., et al., "Redox Polymer Films Containing Enzymes. 1. A Redox-Conducting Epoxy Cement: Synthesis, Characterization, and Electrocatalytic Oxidation of Hydroquinone," <i>J. Phys. Chem.</i> , 95:5970-5975 (1991).

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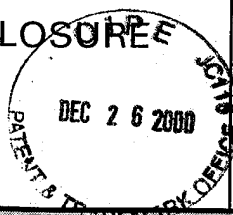
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✓	104	Hashimoto, et al., "Sequence-Specific Gene Detection with a Gold Electrode Modified with DNA Probes and an Electrochemically Active Dye," <i>Anal. Chem.</i> 66:3830-3833 (1994).	
✓	105	Hegner, et al., "Immobilizing DNA on gold via thiol modification for atomic force microscopy imaging in buffer solutions," <i>FEBS</i> 336(3):452-456 (1993).	
✓	106	Heller, A., et al., "Amperometric biosensors based on three-dimensional hydrogel-forming epoxy networks," <i>Sensors and Actuators</i> , 13-14:180-183 (1993).	
✓	107	Heller, A., "Electrical Wiring of Redox Enzymes," <i>Acc. Chem. Res.</i> , 23:128-134 (1990).	
✓	108	Heller et al., "Fluorescent Energy Transfer Oligonucleotide Probes," <i>Fed. Proc.</i> 46(6):1968 (1987) Abstract No. 248.	
✓	109	Ho "DNA-Mediated Electron Transfer and Application to 'Biochip' Development," <i>Abstract. Office of Naval Research</i> (Report Date: July 25, 1991) 1-4, RR04106.	
X	110	Hobbs et al., "Polynucleotides Containing 2'-Amino-2'-deoxyribose and 2'-Azido-2'-deoxyribose," <i>Biochemistry</i> , 12(25):5138-5145 (1973).	
X	111	Hsung, et al., "Synthesis and Characterization of Unsymmetric Ferrocene-Terminated Phenylethynyl Oligomers," <i>Organometallics</i> , 14:4808-4815 (1995).	
✓	112	Hsung, et al., "Thiophenol Protecting Groups for the Palladium-Catalyzed Heck Reaction: Efficient Syntheses of Conjugated Arylthiols," <i>Tetrahedron Letters</i> . 36(26):4525-4528 (1995).	
X	113	Jenkins et al., "A Sequence-Specific Molecular Light Switch: Tebhering of an Oligonucleotide to a Dipyridophenazine Complex of Ruthenium (II), <i>J. Am. Chem. Soc.</i> , 114:8736-8738 (1992).	
✓	114	Katritzky, et al., "Pyridylethylation - A New Protection Method for Active Hydrogen Compounds," <i>Tetrahedron Letters</i> , 25(12):1223-1226 (1984).	
✓	115	Kelley, S.O. and J.K. Barton, "Electrochemistry of Methylene Blue Bound to a DNA-Modified Electrode," <i>Bioconjugate Chem.</i> , 8:31-37 (1997).	
✓	116	Kojima et al., "A DNA Probe of Ruthenium Bipyridine Complex Using Photocatalytic Activity," <i>Chemistry Letter</i> , pp 1889-1982 (1989).	
✓	117	Laviron, E., "A.C. Polarography and Faradaic Impedance of Strongly Adsorbed Electroactive Species. Part I: Theoretical and Experimental Study of a Quasi-Reversible Reaction in the Case of a Langmuir Isotherm," <i>J. Electroanal. Chem.</i> , 97:135-149 (1979).	
✓	118	Laviron, E., "A.C. Polarography and Faradaic Impedance of Strongly Adsorbed Electroactive Species. Part III: Theoretical Complex Plane Analysis for a Surface Redox Reaction," <i>J. Electroanal. Chem.</i> , 105:35-42 (1979).	
✓	119	Lee, et al., "Direct Measurement of the Forces Between Complementary Strands of DNA," <i>Science</i> , 266:771-773 (1994).	
✓	120	Lenhard, J.R., et al., "Part VII Covalent Bonding of a Reversible- Electrode Reactant to Pt Electrodes Using an organosilane Reagent" <i>J. Electronal. Chem.</i> , 78:195-201 (1977).	
✓	121	Lipkin "Identifying DNA by the Speed of Electrons," <i>Science News</i> , 147(8):117 (1995).	
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✓	122	Maskos, et al., "Oligonucleotide hybridisations on glass supports: a novel linker for oligonucleotide synthesis and hybridisation properties of oligonucleotides synthesised <i>in situ</i> ," <i>Nucleic Acids Research</i> , 20(7):1679-1684 (1992).
✗	123	Mazzocchi, Ph.H. and G. Fritz, "Photolysis of N-(2-Methyl-2-Propenyl)phthalimide in Methanol. Evidence Supporting Radical-Radical Coupling of a Photochemically Generated Radical Ion Pair," <i>Journal of the American Chemical Society</i> , 108(18):5361-5362 (1986).
✓	124	McGee, et al., "2'-Amino-2'-deoxyuridine <i>via</i> an Intramolecular Cyclization of a Trichloroacetimidate," <i>J. Org. Chem.</i> , 61:781-785 (1996).
✓	125	Meade, T. J., "Driving-Force Effects on the Rate of Long-Range Electron Transfer in Ruthenium-Modified Cytochrome c," <i>J. Am. Chem. Soc.</i> , 111:4353-4356 (1989).
✓	126	Meade, T. J., et al., "Electron Transfer through DNA: Site-Specific Modification of Duplex DNA with Ruthenium Donors and Acceptors," <i>Angew Chem. Int. Ed. Engl.</i> , 34:352 (1995).
✗	127	Mestel, "'Electron Highway' Points to Identity of DNA," <i>New Scientist</i> , p. 21 (1995).
✗	128	Millan, et al., "Voltammetric DNA Biosensor for Cystic Fibrosis Based on a Modified Carbon Paste Electrode," <i>Anal. Chem.</i> , 66:2943-2948 (1994).
✗	129	Millan, K.M., et al., "Covalent Immobilization of DNA onto Glassy Carbon Electrodes," <i>Electroanalysis</i> , 4(10):929-932 (1992).
✓	130	Millan, K.M. and Mikkelsen, S.R., "Sequence-Selective Biosensor for DNA Based on Electroactive Hybridization Indicators," <i>Anal. Chem.</i> , 65:2317-2323 (1993).
✓	131	Miller, C., "Absorbed ω -Hydroxy Thiol Monolayers on Gold Electrodes: Evidence for Electron Tunneling to Redox Species in Solution," <i>J. Phys. Chem.</i> , 95:877-886 (1991).
✓	132	Murphy, C. J., et al., "Long-Range Photoinduced Electron Transfer Through a DNA Helix," <i>Science</i> , 262:1025-1029 (1993).
✗	133	Orellana, G., et al., "Photoinduced Electron Transfer Quenching of Excited Ru(II) Polypyridyls Bound to DNA: The Role of the Nucleic Acid Double Helix," <i>Photochemistry and Photobiology</i> , 54(4):499-509 (1991).
✓	134	Palecek, "From Polarography of DNA to Microanalysis with Nucleic Acid-Modified Electrodes," <i>Electroanalysis</i> , 8(1):7-14 (1996).
✓	135	Paterson, "Electric Genes: Current Flow in DNA Could Lead to Faster Genetic Testing," <i>Scientific American</i> , 33-34 (May 1995).
✓	136	Purugganan, M. D., et al., "Accelerated Electron Transfer Between Metal Complexes Mediated by DNA," <i>Science</i> , 241:1645-1649 (1988).
✗	137	Rhodes, D. And A. Klug, "Helical Periodicity of DNA Determined by Enzyme Digestion," <i>Nature</i> , 286:573-578 (1980).
✗	138	Risser, S. M., et al., "Electron Transfer in DNA: Predictions of Exponential Growth and Decay of Coupling with Donor-Acceptor Distance," <i>J. Am. Chem. Soc.</i> , 115(6):2508-2510 (1993).
✗	139	Sato, Y., et al., "Unidirectional Electron Transfer at Self-Assembled Monolayers of 11-Ferrocenyl-1-undecanethiol on Gold," <i>Bull. Chem. Soc. Jpn.</i> , 66(4):1032-1037 (1993).

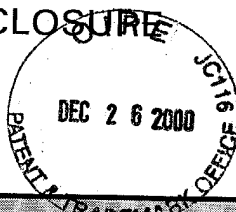
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PTO-1449



ATTY. DOCKET NO.
A-67499-1/RFT/
RMS/RMK

SERIAL NO:
09/472,657

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FILING DATE:
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A-67499-1/RFT/
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09/472,657

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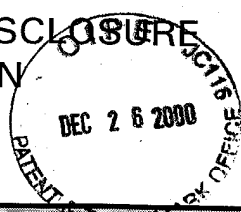
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PTO-1449

ATTY. DOCKET NO.
A-67643-2/RFT/
RMS/RMK

SERIAL NO:
09/621,275

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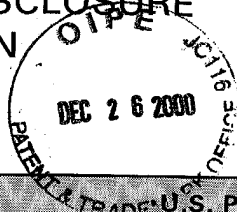
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